Periscope.

ANATOMY AND PHYSIOLOGY.

34. Considerazioni sulla struttura del nucleo delle cellula nervosi (Considerations of the Nuclear Structure in Nerve Cells). G. Levi (Rivista di Patologia nervosa e mentale, 3, 1898, p. 289).

After a brief summary of the opinions of various authors on the micro-chemical reactions of the nuclear structures, the author gives the results of his own researches. He believes that in the nucleus are found at least two distinct substances, the central portion consisting of a substance stained by acid reagents, the peripheral portions taking up basic coloring matters. In various pathological conditions the peripheral portions remain unaltered, while the central portion of the nucleus may show diffuse acidophile coloration. That the nucleus is not made up entirely of nucleins would seem to be proven by the author's researches. The acidophile substances change greatly during the cellular activities, while the basophile substances, nucleins, remain more or less stable. In the mitotic changes, elsewhere studied more in detail by the same author, the acidophile structures seem to give rise in part to the centrosomes and in part to the spindles.

Jelliffe.

35. Ueber die Ursachen, welche die Wachsthumsrichtung der Nervenfasern bei der Regeneration bestimmen (The Causes That Determine the Direction of Growth of the Peripheral Nerve Fibers During Regeneration). J. Forssman (Ziegler's Beiträge, 24, 1898, p. 56).

As hitherto a mechanical theory was the only one generally accepted as explaining the direction of growth of nerve fibers, and yet is for many reasons unsatisfactory, Forssman undertook to determine whether some other conditions might be of influence. His experiments were performed as follows: A section of nerve was removed and the two ends then placed in a small tube of straw, sometimes connected by a thread, sometimes allowed to remain separate, and sometimes a piece of nerve resected from another part was placed between them, either within or outside of the straw. He found that in the former case, some of the fibers followed the thread, but many became hopelessly entangled and lost. When, however, a piece of nerve was interposed, even if it lay outside the tube, the nerve fibers grew into it and followed it to the peripheral portion. He then filled the tubes with an emulsion of brain or spinal cord substance, and found that it exerted the same attractive influence, and he therefore concludes that nervous tissue contains some peculiar element that attracts to itself regenerating nerve fibers. This influence he names positive neuro-trophismus, and ascribes it not alone to the disintegration of the nerve substance but to the disintegration in a peculiar manner. The degenerated nerve tissue can apparently exert this influence over a considerable space, a condition that he names chemo-trophismus. Sailer.

36. Nucleus diaphragmæ. Étude sur l'origine réele du nerf diaphragmatique (Origin of the Phrenic Nerve). Fr. Sano (Journal médical de Bruxelles, 1898, No. 42).

In the human subject studied by Nissl's method the author comes to the following results with reference to the phrenic nuclei. The motor neurons, which enter into the constitution of the phrenic nerve, have their ganglion cells grouped in a long spinal nucleus, which occupies the central portion of the anterior horns, from the lower third cervical segment to the middle of the sixth segment.

The sensory neurons of this same nerve have nuclei of origin in small groups in the spinal ganglia of the third, fourth, fifth and sixth cervical nerves.

The vaso-motor neurons are in relation with the middle and inferior grand sympathetic and at times with the first thoracic ganglion. The situation of their ganglion cells has not yet been located with definiteness. JELLIFFE.

37. HEMORRHAGE INTO PONS, SECONDARY LESIONS OF LEMNISCUS, POSTERIOR LONGITUDINAL FASCICULI, AND FLOCCULUS CEREBELLI. S. Gee and H. H. Tooth (Brain, 21, 1898, p. 1).

The case here reported presents noteworthy anatomical features. The case was one of hemorrhage into the pons in a young woman of twenty-one years of age, associated with interstitial kidney lesions and hypertrophy of the left ventricle. The hemorrhage was on the right side, encroaching slightly to the left. It lay at about the junction of the middle with the lower third of the pons, and bulged into the fourth ventricle. The whole of the right sixth nucleus was destroyed. The hemorrhage cephalad followed, and was limited to the right lemniscus which was almost totally destroyed up to the level of the spinal end of the fourth nucleus. The patient lived nineteen days after the onset of the hemorrhage. The conclusions of the authors are as follows: 1. With reference to the Lemniscus. a. It consists of fibers which ascend only, the lowest origin being the nucleus cuneatus and nucleus gracilis. It increases markedly cephalad, which is due probably to the accession of fibers from the sensory nuclei of the medulla. b. Its destination. As the corpora quadrigemina are approached the lemniscus gives off a dorsal branch, the lateral lemniscus, which appears to end in the corpora quadrigemina. The main or mesial lemniscus proceeds brainwards towards the optic thalamus, and here again appears to divide into two bundles, one of which loses itself in the optic thalamus; the other mass of fibers appears to take a lateral direction dorsally situated to the corpus sub-thalamicum. These fibers may enter the optic thalamus higher up, or they may pursue an uninterrupted course to the cortex. c. Its function is for the transmission of afferent impulses, but it can scarcely be the only path in the medulla and pons for afferent impressions.

2. Posterior Longitudinal Bundles. These consist of fibers running to and from the brain in probably nearly equal proportions. a. Descending fibers which appear to serve as a path of communication between the motor nuclei above and below the lesion. The position of these fibers suggests a further connection between nuclei above and the anterior and lateral horns of the upper cord, including therefore the nucleus of origin of another cranial nerve, the spinal accessory. b. Ascending fibers enter into close relations with the cells of other motor nuclei (fourth and third). There is a free decussation across the middle line at the level of the third nucleus. Though most of the posterior longitudinal fibers seem to be absorbed in the third, yet a considerable number can be seen above it, and these probably enter into the optic thalamus.

3. Flocculus of the Cerebellum. Its white matter consists largely of fibers derived from some higher level, probably the transverse fibers of the formatio reticularis. JELLIFFE.